

REMARKS

This case has been carefully reviewed in light of the Office Action of 14 August 2002, in which claims 1, 2, 5, 6, 9, 10, 12, 13, 15, 17, 18, 19, 22, 23, 34, and 36 were rejected under 35 USC 102(b) as being anticipated by Nagaei et al., Abstract of JP56096083 (hereinafter "Nagaei"); claims 7 and 8 were rejected under 35 USC 103(a) as being unpatentable over Nagaei in view of O'Brien, US Patent No. 5,817,182; claims 3, 4, 11, 14, 16, 20, 21, 35, 37, and 42-48 were rejected under 35 USC 103(a) as being unpatentable over Nagaei in view of Matsukawa, US Patent No. 5,962,145; and claims 24-33 were objected to as depending from a rejected base claim. In this Response, claims 1, 24, 26, 34, and 38 have been amended, and claim 23 has been cancelled. Claims 1-22 and 24-48 remain pending in this application. Reconsideration in light of the aforementioned amendments and following remarks is respectfully requested.

Applicants respectfully traverse the rejection of claims 1, 2, 5, 6, 9, 10, 12, 13, 15, 17, 18, 19, 22, 23, 34, and 36 were rejected under 35 USC 102(b) as being anticipated by Nagaei. In this reference, a weak acid solution is used to wash oil and adhered aluminum powder from aluminum alloy substrates without "spoiling or etching" the substrate. Applicants respectfully submit that this description in no way teaches, suggests, or discloses "contacting at least one of a diffusion coating and an overlay coating" with an acid, as recited in amended independent claims 1 and 34 of the present application. As related on page 1 of the present specification, "diffusion coatings" and "overlay coatings" are terms used in the art to refer to types of high-temperature oxidation-resistant coatings that are suitable, for example, as protective coatings on gas turbine components. No fair reading of the applied reference's description of "working oil or fat and Al powder adhered to the surface of product made by rolling" would lead one skilled in the art to develop a method for removing the coatings recited in claim 1 and claim 34 of the present application, for several reasons. First, the materials described in the applied reference are merely residue accumulated during the rolling process, not protective coatings. Second, due to the high temperature environment endured by turbine components, oil, fat, and Al powder are clearly not suitable materials for use in these applications, as all three of these materials would melt and possibly burn at normal turbine operating conditions. Third, the "washing solution" described in the applied reference is so weak that it does not etch aluminum substrates. One skilled in the art would not turn to Nagaei when faced with the problem of removing such inherently chemically resistant materials as diffusion coatings and overlay coatings, recited in instant claims 1 and 34, because the fact that the solution cannot etch a mere aluminum alloy strongly suggests that such a solution has very little likelihood of etching such coatings at a practical rate, if at all. Applicants thus respectfully submit that this reference does not teach, suggest, or disclose the limitation, recited in instant claims 1 and 34, of "contacting at least one of a diffusion coating and an overlay coating." Applicants respectfully submit that claims 1 and 34 are patentably distinct from the applied reference.

Claims 2, 5, 6, 9, 10, 12, 13, 15, 17, 18, 19, 22, 23 depend from claim 1, and claim 36 depends from claim 34. As described above, Applicants believe claims 1 and 34 are patentable

claims, and thus their respective dependent claims set forth above are also believed to be patentable because each depends from an allowable independent claim.

Applicants respectfully traverse the rejection of claims 7 and 8 were rejected under 35 USC 103(a) as being unpatentable over Nagaei in view of O'Brien. Each of these claims depends from claim 1, and are thus believed to be patentable due to their dependencies from an allowable independent claim.

Applicants respectfully traverse the rejection of claims 3, 4, 11, 14, 16, 20, 21, 35, 37, and 42-48 under 35 USC 103(a) as being unpatentable over Nagaei in view of Matsukawa. As to the claims 3, 4, 11, 14, 16, 20, 21, 35, 37, each of these claims depends from either claim 1 or claim 34, and is thus believed to be patentable due to dependency from an allowable independent claim. As to independent claim 42, Applicants respectfully submit that the combination of the two references does not constitute a proper *prima facie* case of obviousness, for a number of reasons as set forth, below.

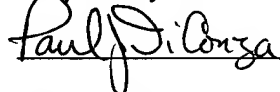
As described above, Nagaei describes the use of a weak acid solution to wash certain debris from the surface of aluminum substrates, without etching the aluminum. The fact that the solution is so weak that it does not etch aluminum is significant to claim 42, because one skilled in the art would reason that, if the solution does not etch aluminum, it will be too weak for removing coatings from substrates, as recited in present claim 42. One skilled in the art would thus have no reasonable expectation that applying the wash solution of Nagaei to the problem of removing coatings from components would be successful. The combination of Nagaei with Matsukawa does not overcome the deficiencies stated above. Matsukawa describes an aluminum surface treatment solution comprising fluorometal acids such as H_2ZrF_6 , H_2TiF_6 , H_2HfF_6 , H_2AlF_6 , H_2SiF_6 , H_2GeF_6 , H_2SnF_6 and HF_6 . However, Applicants respectfully submit that Matsukawa's process cannot be properly combined with Sagaei's for a number of reasons. First, Matsukawa's process involves some etching of the aluminum surface (col. 3, lines 38-54), which is in direct conflict with the stated purpose of Sagaei's process: "To remove adhered oil or Al powder from the surface of Al without spoiling or etching the Al surface... ." Second, Matsukawa's method also deposits a corrosion-resistant film on the surface of the Al (see, for example, the Abstract and col. 3, lines 45-54). Sagaei's method, on the other hand, describes just the opposite effect: "a passive film of the Al (alloy) article is destroyed by fluoride ions." In other words, the method of Sagaei seeks to strip away any oil, grease ("fat"), metal particles, and oxide ("passive") layers on the aluminum surface, without etching the aluminum surface, leaving a bare, clean metal surface; in stark contrast, Matsukawa's method etches the aluminum surface and, at the same time, deposits a film on the surface, leaving an etched surface covered with a non-metallic film. Applicants respectfully submit, therefore, that to combine the Matsukawa process, and the solution used in that process, with the Sagaei process and solution destroys the intent, purpose, and function of

the invention disclosed in Sagaei. Therefore, one skilled in the art would not be motivated to combine these two references, and, in fact, there would be a disincentive to do so. For the reasons stated above, Applicants respectfully submit that independent claim 42, and its dependent claims 43-48, are patentably distinct from the applied reference combination.

Applicants respectfully submit that the objection to claims 24-33 should be removed, as Applicants believe that the independent claims from which these claims depend are allowable, for reasons set forth above.

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Respectfully submitted,



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Version with markings to show changes made

1. (Amended) A method for selectively removing at least one coating from the surface of a substrate, comprising the step of contacting the coating with an aqueous composition which comprises an acid having the formula H_xAF_6 , or precursors to said acid, wherein A is selected from the group consisting of Si, Ge, Ti, Zr, Al, and Ga; wherein [and] x is 1-6; and wherein contacting said coating further comprises contacting at least one of a diffusion coating and an overlay coating.
24. (Amended) The method of claim [23] 1, wherein the diffusion coating comprises an aluminide material.
26. (Amended) The method of claim [23] 1, wherein the overlay coating comprises $MCrAl(X)$, where M is an element selected from the group consisting of Ni, Co, Fe, and combinations thereof, and X is an element selected from the group consisting of Y, Ta, Si, Hf, Ti, Zr, B, C, and combinations thereof.
34. (Amended) A method for selectively removing at least one coating material from the surface of a metallic substrate, comprising the step of contacting the coating with an aqueous composition which comprises an acid having the formula H_xAF_6 , or precursors to said acid, wherein A is selected from the group consisting of Si, Ti, and Zr; [and] wherein x is 1-3; and wherein contacting said coating further comprises contacting at least one of a diffusion coating and an overlay coating.
38. (Amended) The method of claim 34, wherein the coating is selected from the group consisting of aluminides [or] and $MCrAlY$ materials, wherein M is an element selected from the group consisting of Ni, Co, Fe, and combinations thereof.